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**Name of Organization:** Delta Institute

**Type of Organization:** Other

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**Project Title:** Toxic Reductions from Energy Efficiency Among Industrial Boi

**Project Category:** Pollution Prevention and Reduction - BNS

**Rank by Organization (if applicable):** 1

**Total Funding Requested (\$):** 100,196 **Project Duration:** 1 Years

**Abstract:**

The Delta Institute proposes to coordinate and facilitate Phase II of a GLNPO funded project Sector-Based Pollution Prevention: Toxic Reduction through Energy Efficiency and Conservation Among Industrial Boilers (GL99182). The project is a partnership with the Council of Industrial Boiler Owners and State of Wisconsin agencies. The goal of the project is to establish cooperative agreements with the State of Wisconsin and a trade association - or a cluster of its members - to achieve emission reductions of BNS Level I and Level II pollutants through the implementation of selected energy efficiency technologies and methods. The anticipated agreements will serve as models for other state energy and air regulators and the BNS Integration Workgroup. And while the agreements will initially focus on energy related emissions, they will also commit to broader efforts that will eventually address pollutants generated from industrial and commercial activities from a broad range of source sectors.

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**Geographic Areas Affected by the Project**

**States:**

<input checked="" type="checkbox"/> Illinois	<input type="checkbox"/> New York
<input checked="" type="checkbox"/> Indiana	<input type="checkbox"/> Pennsylvania
<input type="checkbox"/> Michigan	<input checked="" type="checkbox"/> Wisconsin
<input type="checkbox"/> Minnesota	<input type="checkbox"/> Ohio

**Lakes:**

<input type="checkbox"/> Superior	<input type="checkbox"/> Erie
<input type="checkbox"/> Huron	<input type="checkbox"/> Ontario
<input type="checkbox"/> Michigan	<input checked="" type="checkbox"/> All Lakes

**Geographic Initiatives:**

<input checked="" type="checkbox"/> Greater Chicago	<input type="checkbox"/> NE Ohio	<input type="checkbox"/> NW Indiana	<input type="checkbox"/> SE Michigan	<input type="checkbox"/> Lake St. Clair
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**Primary Affected Area of Concern:** Not Applicable

**Other Affected Areas of Concern:**

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***For Habitat Projects Only:***

**Primary Affected Biodiversity Investment Area:** Not Applicable

**Other Affected Biodiversity Investment Areas:**

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**Problem Statement:**

The Delta Institute, Council of Industrial Boiler Owners and three State of Wisconsin agencies are currently engaged in developing strategies for reducing emissions of BNS substances from industrial, commercial and institutional boilers. The first phase of this project was launched and funded in recognition that non-utility boilers and other energy generating devices constitute a significant percentage of the emission inventories for several BNS Level I & II pollutants. For example, boilers, internal combustion engines and gas-fired turbines producing thermal and/or electric energy are the second largest source of mercury (EPA, 1997), second largest source of cadmium, fifth largest source of PCBs, and seventh largest source of dioxins and furans (NTI). These facilities are also significant sources of PAHs (see BNS workgroup proceedings). These facilities are critical to the Great Lakes industrial economy and are expected to play a greater role in meeting the demands of a deregulated energy marketplace. Although the quantity of emissions of air toxics from electric utility boilers is greater, the local contribution of toxics to the Great Lakes may be disproportionately higher from smaller facilities (see NESCAUM 1998). These facilities are also significant sources of ozone precursors, acid aerosols, particulate matter and fine particulate precursors, as well as greenhouse gases.

Preliminary findings of Phase I of this project have confirmed that many energy efficiency measures and some emerging technologies offer significant opportunities to reduce both energy consumption and emissions of BNS substances from these facilities. Unfortunately, preliminary discussions also suggest that in spite of efforts by federal and state agencies to encourage increased energy efficiency among these sources, market penetration of these efforts has been insignificant. Additionally, some of the barriers to achieving significant environmental benefits include a lack of coordination among providers of technical assistance programs, lack of awareness of potential benefits among sources, inconsistent incentive strategies and unlikelihood of regulatory mandates to address BNS substances.

**Proposed Work Outcome:**

The Delta Institute, in partnership with the Council of Industrial Boiler Owners and the Wisconsin Department of Natural Resources, is proposing to continue the work launched under the FY 1999-2000 GLNPO funded Sector-Based Pollution Prevention: Toxic Reduction through Energy Efficiency and Conservation Among Industrial Boilers (GL99182). Specifically, the goal for this second phase of the project is to establish cooperative agreements with the State of Wisconsin and a trade association - or a cluster of its members - to achieve emission reductions of BNS Level I and Level II pollutants through the implementation of selected energy efficiency technologies and methods. The proposed Phase II work plan has three critical elements: 1) agreement on energy efficiency strategies to promote, 2) development of reporting protocols, and 3) program launch.

Selection of Energy Efficiency Measures for Implementation

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Under Phase I of this project, several energy efficiency initiatives recently launched by federally sponsored partnerships have emerged as the most feasible energy efficiency options to pursue. These include the Steam Partnership, Compressed Air Challenge and Motor Challenge. These options are most likely to be bundled together because they are existing program priorities for both US Department of Energy and EPA, have proven to offer near-term savings on investments and already embody an appropriate level of technical assistance. Collectively these programs can achieve energy savings - and emission reductions - of 20-40% at participating facilities. Specific savings and timelines will be established in this phase of the project. Additional energy efficiency components are also being considered as options to include in the final agreements.

#### Reporting Protocols

While ongoing energy efficiency efforts have developed both diagnostic tools and emission factors for calculating potential energy savings and environmental benefits, no process has been institutionalized for reporting and tracking the actual environmental benefits achieved by implementing energy efficiency strategies and programs. This is problematic for several reasons. First, building a more substantial database of case studies has been identified in Phase I of this project as critical to increasing participation in effective programs. Second, reporting and tracking of the environmental benefits from these programs would be useful to both energy and air quality agencies. And finally, preliminary findings suggest that establishing an ongoing reporting or internal monitoring program significantly increases the likelihood that participating facilities will achieve and maintain environmental benefits from participating in programs such as the Steam Partnership.

For these reasons, both qualitative and quantitative reporting protocols will be established for tracking the benefits at participating facilities. In addition to fuel inputs, energy outputs and criteria pollutants, several Level I & II pollutants will be addressed. These include mercury, dioxin/furans, PAH's (or POM/EOM) including benzo(a)pyrene, and cadmium. Additionally, hexachlorobenzene, octachlorostyrene and PCB's are being considered for tracking. The qualitative tracking option will provide relative reduction potentials, while more rigorous protocols will be developed consistent with required annual air quality reporting requirements. These protocols (and data) will also strive for consistency with proposals to capture "early reduction activities" for future climate change programs and Wisconsin's proposed mercury cap and trade program.

#### Program Launch

The program will be launched with public announcements of two agreements in the spring of 2001. One agreement will be with the State of Wisconsin, the second agreement with the Council of Industrial Boiler Owners. These agreements will detail specific energy efficiency options to be implemented, energy savings to be achieved in each of the next three years and amount of specific BNS pollutants to be reduced. It is also anticipated that similar targets for emissions reductions of nitrogen oxides and greenhouse gases will be included in the agreements. Additionally, the agreements will include commitments to develop facility-wide strategies for eventually addressing other non-energy sources of BNS substances.

A final report will also be released with the announcement of the agreements encompassing recommendations targeted to three audiences: federal policy makers, Great Lakes states and provinces, and the BNS Integration Workgroup. The recommendations are anticipated to address several critical policy areas, including source sector applicability, state incentives and policies, and federal issues. The first set of recommendations will be targeted to states struggling to meet the challenges posed by the NOx SIP Call. It is envisioned that the Wisconsin agreement will serve as a model for other publicly owned point sources and establish a framework for rewarding energy efficiency in state air quality planning efforts. A second set of recommendations will address options for offering new - or enhancing existing - incentive programs to public and private sector industrial and commercial boiler owners for achieving BNS toxic reduction objectives. These incentives include tax and financial programs, public recognition and technical assistance. Finally, specific recommendations regarding both regulatory and voluntary program options for the BNS Integration Workgroup will be provided.

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<b>Project Milestones:</b>	<b>Dates:</b>
Project Start	10/2000
Selection of Energy Efficiency Measures	12/2000
Reporting Protocols Completed	03/2001
Agreements Announced	06/2001
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Project End	09/2001

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Project Addresses Environmental Justice

**If So, Description of How:**

Project Addresses Education/Outreach

**If So, Description of How:**

Education and outreach will be an important element of Phase II of this project. In addition to publicizing agreements reached with participating facilities, the Delta Institute intends to ensure project reports and recommendations are targeted to key policy makers in the region: federal policy makers, Great Lakes states and provinces, and the BNS Integration Workgroup. This approach will include presentations targeted to key environmental policy forums. Additionally, findings, recommendations and tracking of environmental benefits will be posted on Delta Institute and other websites.

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**Project Budget:**

	<b>Federal Share Requested (\$)</b>	<b>Applicant's Share (\$)</b>
<b>Personnel:</b>	31,380	0
<b>Fringe:</b>	10,199	0
<b>Travel:</b>	3,000	0
<b>Equipment:</b>	0	0
<b>Supplies:</b>	1,175	0
<b>Contracts:</b>	25,000	0
<b>Construction:</b>	0	0
<b>Other:</b>	2,000	0
<b>Total Direct Costs:</b>	72,754	0
<b>Indirect Costs:</b>	27,442	5,010
<b>Total:</b>	100,196	5,010
<b>Projected Income:</b>	0	0

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**Funding by Other Organizations (Names, Amounts, Description of Commitments):**

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**Description of Collaboration/Community Based Support:**

Phase II of this project will continue to be a partnership primarily driven by the Delta Institute, the Council of Industrial Boiler Owners and the Wisconsin Department of Natural Resources. Additional involvement and guidance of the project will continue to come from the U.S. Department of Energy and American Council for an Energy Efficient Economy.